

## GLOBAL MEMS DESIGN CONTEST WINNERS ANNOUNCED

*Team from ESIEE Paris and Sorbonne University Awarded Grand Prize for Innovative use of MEMS and Mixed-Signal Design in 3D Vibration Energy Harvester Project*

**Munich, Germany, May 9, 2018**— Cadence Design Systems, Coventor, X-FAB and Reutlingen University announced the grand prize winner of the Global MEMS Design Contest 2018 at CDNLive EMEA 2018, the Cadence® annual user conference. A team from ESIEE Paris and Sorbonne University received the grand prize award for designing an innovative MEMS-based energy harvesting product using electrostatic transduction. Energy harvesting products can be used in implantable medical devices and other portable electronics that need to operate without an external power source.

The winning team received a \$5,000 cash prize along with a complimentary one-year license of CoventorMP™ MEMS design software. In addition, X-FAB will fabricate the team's winning design using the X-FAB XMB10 MEMS manufacturing process.

The design contest was launched two years ago at the 2016 Design, Automation and Test in Europe (DATE) conference, with the goal of encouraging the development of imaginative concepts in MEMS and mixed-signal design. Contest submissions were received from around the world, and three semifinalist teams were selected in February 2018 to compete for the grand prize. A panel of industry professionals and respected academics selected the grand prize winner based upon the degree of innovation demonstrated in the hardware and methodology, the novelty of the application, adherence to the design flow and the educational value of the submission.

"We are extremely excited to be working with the team from ESIEE and Sorbonne to manufacture their energy harvesting product," said Volker Herbig, vice president, BU MEMS at X-FAB. "The design rules and process specifications provided in X-FAB and Coventor's MEMS PDK, along with Cadence technology, should help ensure "first-time-right" manufacturing of the winning team's design. We look forward to bringing the winning contestant's innovative thinking to life, using our well-tested open-platform MEMS and CMOS manufacturing technologies."

"We are very pleased that the contestants used the CoventorMP design environment and XMB10 MEMS PDK to create and model their designs," said Dr. Stephen Breit, Vice President of Engineering at Coventor, a Lam Research Company. "We're looking forward to X-FAB's successful manufacturing of the winning team's design, which will demonstrate how this new approach can reduce the cost and time of developing new MEMS products."

“We were impressed with the high-calibre and creativity of the designs submitted,” said Sanjay Lall, Regional Vice President EMEA of Cadence. “The contestants were able to successfully simulate their combined MEMS and mixed-signal designs in the Cadence Virtuoso® Analog Design environment and use the Cadence Spectre® Circuit Simulator for their transient simulations. Choosing one winner was very difficult, as all the finalists put forward excellent projects.”

A team from King Abdullah University of Science and Technology (KAUST) in Thuwal, Saudi Arabia, took home the second-place prize, which included a cash award of \$2,000. The team from KAUST created a MEMS resonator for oscillator, tunable filter and re-programmable logic device applications.

Third place went to a team from the University of Liege, Microsys, KU Leuven and Zhejiang University. This team created a genetic algorithm for the design of non-linear MEMS sensors with compliant mechanisms and showcased it using a capacitive MEMS accelerometer. They received a cash prize of \$1,000.

In addition to the cash prizes, all three semifinalists had the opportunity to present their winning entries to an audience of design professionals at the [CDNLive EMEA 2018](#) conference.

For more details regarding the winning teams and their contest entries, please visit the [MEMS Design Contest website](#).

### **About the Contest Organizers**

**Reutlingen University** ([www.reutlingen-university.de](http://www.reutlingen-university.de)) is one of Germany’s leading universities, offering international academic programs with close ties to industry and commerce. It helped formulate and organize the call for participation of the contest.

**X-FAB** ([www.xfab.com](http://www.xfab.com)) is the leading analog/mixed-signal and MEMS foundry group manufacturing silicon wafers for automotive, industrial, consumer, medical and other applications. Its customers worldwide benefit from the highest quality standards, manufacturing excellence and innovative solutions by using X-FAB’s modular CMOS processes in geometries ranging from 1.0 to 0.13  $\mu\text{m}$ , and its special BCD, SOI and MEMS long-lifetime processes. X-FAB’s analog-digital integrated circuits (mixed-signal ICs), sensors and micro-electro-mechanical systems (MEMS) are manufactured at six production facilities in Germany, France, Malaysia and the U.S. X-FAB employs about 4,000 people worldwide.

**Coventor, a Lam Research Company** ([www.coventor.com](http://www.coventor.com)), is the market leader in automated solutions for developing semiconductor process technology, as well as micro-electromechanical systems (MEMS). Coventor serves a worldwide customer base of integrated device manufacturers, memory suppliers, fabless design houses, independent foundries, and R&D organizations. Its SEMulator3D® modeling and analysis platform is used for fast and accurate ‘virtual fabrication’ of advanced manufacturing processes, allowing engineers to understand manufacturing effects early in the development process and reduce time-consuming and costly silicon learning cycles. Its CoventorMP MEMS design solution is used to develop MEMS-based products for automotive, aerospace, industrial, defense, and consumer electronics applications, including smart phones, tablets, and gaming systems. Our software and expertise help customers predict the structures and behavior of their designs before they commit to time-consuming and costly actual fabrication.

**Cadence** ([www.cadence.com](http://www.cadence.com)) enables electronic systems and semiconductor companies to create the innovative end products that are transforming the way people live, work and play. Cadence software, hardware and semiconductor IP are used by customers to deliver products to market faster. The company's System Design Enablement strategy helps customers develop differentiated products—from chips to boards to systems—in mobile, consumer, cloud datacenter, automotive, aerospace, IoT, industrial and other market segments. Cadence is listed as one of Fortune Magazine's 100 Best Companies to Work For.

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